

**Amendments to the Claims**

1 Claim 1 (currently amended): A method of building distributed software services as  
2 aggregations of other services, comprising steps of:  
3 determining a taxonomy of interest for a new distributed software service that is to be  
4 accessible using a content aggregation framework;  
5 programmatically scanning a network-accessible registry to locate registered services  
6 having the taxonomy of interest;  
7 ~~—determining if each located service has a predetermined deployment interface; and~~  
8 for each located service, providing the located service to a service composition  
9 tool with which a user can select provided services to build new distributed software services, if  
10 the located service has a deployment interface specification associated therewith and a functional  
11 interface specification associated therewith, the deployment interface specification adapted for  
12 representing the located service in the service composition tool and the functional interface  
13 specification adapted for enabling a proxying component to provide access to the located service  
14 from the content aggregation framework ~~determining step has a positive result.~~

1 Claim 2 (currently amended): The method according to Claim 1, further comprising the ~~step of~~  
2 steps of:  
3 adding the predetermined deployment interface specification to the located service when  
4 the located service does not have the deployment interface specification; and  
5 then providing the located service to the service composition tool ~~determining step has a~~  
6 ~~negative result.~~

Claims 3 - 4 (canceled)

1 Claim 5 (currently amended): The method according to Claim ~~[[4]]~~ 1, further comprising the  
2 ~~step of steps of:~~

3 determining if each located service has a system interface specification associated  
4 therewith, the system interface specification adapted for enabling programmatic management of  
5 that located service; and

6 adding the ~~predetermined~~ system interface specification to the located service when the  
7 step of determining ~~[[step]]~~ if each located service has a system interface specification has a  
8 negative result.

1 Claim 6 (currently amended): The method according to Claim 1, wherein the providing step  
2 further comprises the step of placing a representation of the located services on a user interface of  
3 the composition tool.~~[[.]]~~

1 Claim 7 (currently amended): The method according to Claim 1, further comprising the step of  
2 building the new service, by the user, using selected ones of the provided services.

1 Claim 8 (original): The method according to Claim 7, further comprising the step of obtaining  
2 information regarding the provided services for use in the building step.

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1 Claim 9 (original): The method according to Claim 8, wherein the obtained information  
2 comprises operations available from the provided services.

1 Claim 10 (original): The method according to Claim 8, wherein the obtained information  
2 comprises an author of each of the provided services.

1 Claim 11 (original): The method according to Claim 8, wherein the obtained information  
2 comprises a descriptive name of each of the provided services.

1 Claim 12 (original): The method according to Claim 8, wherein the obtained information  
2 comprises an iconic representation of each of the provided services.

1 Claim 13 (original): The method according to Claim 7, further comprising the step of creating a  
2 directed graph representation of the new service.

1 Claim 14 (currently amended): The method according to Claim 13, wherein nodes of the  
2 directed graph represent operations of the new service and edges of the directed graph represent  
3 transition conditions for transitioning between the operations of the new service.

1 Claim 15 (original): The method according to Claim 14, wherein data mapping operations are  
2 associated with selected ones of the edges.

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1 Claim 16 (original): The method according to Claim 13, further comprising the step of creating a  
2 markup language document representing the directed graph representation.

1 Claim 17 (original): The method according to Claim 16, wherein the markup language document  
2 is a Web Services Flow Language ("WSFL") document.

1 Claim 18 (original): The method according to Claim 16, further comprising the step of  
2 registering the markup language document in a network-accessible registry.

1 Claim 19 (currently amended): The method according to Claim 18, wherein the new service  
2 registered markup language document thereby becomes available for locating in subsequent  
3 iterations of the programmatically scanning step.

1 Claim 20 (original): The method according to Claim 7, wherein the new service is modeled as a  
2 portlet.

1 Claim 21 (currently amended): The method according to Claim 7, further comprising the step of  
2 defining, in the functional interface specification associated with the new service, a public  
3 interface to the new service.

1 Claim 22 (currently amended): The method according to Claim 7, further comprising the step of  
2 defining, in the deployment interface specification associated with the new service, a deployment

3 interface to the new service.

1 Claim 23 (currently amended): The method according to Claim 7, further comprising the step of  
2 defining, in a system interface specification associated with the new service, a system interface to  
3 the new service, the system interface specification adapted for enabling programmatic  
4 management of the new service using the system interface.

1 Claim 24 (original): The method according to Claim 7, further comprising the step of selecting  
2 one or more service providers to fulfill operations of the new service.

1 Claim 25 (currently amended): The method according to Claim 24, further comprising the steps  
2 of:  
3 determining a selected taxonomy wherein service providers may be located for binding to  
4 the new service;

5 determining a particular network-accessible registry wherein services available from  
6 [[the]] service providers may be are registered; and

7 programmatically scanning the particular registry to locate service providers having  
8 registered services in the selected taxonomy, wherein the registered services have the functional  
9 interface specification associated therewith, and wherein the functional interface specification  
10 indicates that at least one of the operations of the new service is available from the located  
11 service provider.

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1 Claim 26 (currently amended): The method according to Claim 25, wherein the  
2 programmatically scanning step further comprises determining if the registered services of the  
3 located service providers have ~~a predetermined~~ the deployment interface specification associated  
4 therewith.

1 Claim 27 (currently amended): The method according to Claim 24, further comprising the step  
2 of defining a mapping between operations [[of]] available from the selected service providers and  
3 the operations of the new service.

1 Claim 28 (original): The method according to Claim 27, wherein the mapping comprises  
2 transformation logic.

1 Claim 29 (original): The method according to Claim 27, wherein the mapping comprises  
2 stylesheet transformations.

1 Claim 30 (original): The method according to Claim 28, wherein the transformation logic  
2 specifies service-to-service transformations for particular services.

1 Claim 31 (original): The method according to Claim 24, further comprising the step of creating a  
2 static binding to the selected service providers.

1 Claim 32 (original): The method according to Claim 24, further comprising the step of creating a

2 dynamic binding to the selected service providers.

1 Claim 33 (original): The method according to Claim 32, wherein the dynamic binding includes  
2 syntax to programmatically select particular service providers at run-time.

1 Claim 34 (currently amended): The method according to Claim 27, further comprising the steps  
2 of:

3 determining that no mapping exists; and

4 prompting the user building a composer of the new service to identify a source of the  
5 mapping.

1 Claim 35 (original): The method according to Claim 31, further comprising the step of creating a  
2 markup language document representing the binding.

1 Claim 36 (original): The method according to Claim 35, further comprising the step of  
2 registering the markup language document in the registry.

1 Claim 37 (original): The method according to Claim 32, further comprising the step of creating a  
2 markup language document representing the binding.

1 Claim 38 (original): The method according to Claim 37, further comprising the step of  
2 registering the markup language document in the registry.

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1 Claim 39 (original): The method according to Claim 38, wherein the markup language document  
2 is a Web Services Flow Language ("WSFL") global model.

1 Claim 40 (original): The method according to Claim 1, wherein the new service is a web service.

1 Claim 41 (currently amended): A system for building distributed software services as  
2 aggregations of other services, comprising:

3 means for determining a taxonomy of interest for a new distributed software service that  
4 is to be accessible using a content aggregation framework;

5 means for programmatically scanning a network-accessible registry to locate registered  
6 services having the taxonomy of interest;

7 ~~means for determining if each located service has a predetermined deployment interface;~~  
8 and

9 means for providing each of the located services to a service composition tool with which  
10 a user can select provided services to build new distributed services, if the located service has a  
11 deployment interface specification associated therewith and a functional interface specification  
12 associated therewith, the deployment interface specification adapted for representing the located  
13 service in the service composition tool and the functional interface specification adapted for  
14 enabling a proxying component to provide access to the located service from the content  
15 aggregation framework ~~determining step has a positive result.~~



1 Claim 42 (currently amended): The system according to Claim 41, further comprising:  
2 means for adding the predetermined deployment interface specification to the located  
3 service when the located service does not have the deployment interface specification; and  
4 means for then providing the located service to the service composition tool means for  
5 determining has a negative result.

1 Claim 43 (currently amended): The system according to Claim 41, further comprising:  
2 means for determining if each located service has a predetermined system interface  
3 specification associated therewith, the system interface specification adapted for enabling  
4 programmatic management of for managing that located service; and  
5 means for adding the system interface specification to the located service when the means  
6 for determining has a negative result.

1 Claim 44 (currently amended): The system according to Claim 41, further comprising means for  
2 building the new service, by the user, using selected ones of the provided services.

1 Claim 45 (currently amended): The system according to Claim 44, further comprising means for  
2 creating a directed graph representation of the new service, wherein nodes of the directed graph  
3 represent operations of the new service and edges of the directed graph represent transition  
4 conditions for transitioning between the operations of the new service, and wherein data mapping  
5 operations are associated with selected ones of the edges.

1 Claim 46 (original): The system according to Claim 45, further comprising means for creating a  
2 markup language document representing the directed graph representation and registering the  
3 markup language document in a network-accessible registry.

1 Claim 47 (currently amended): The system according to Claim 44, wherein the new service is  
2 modeled as a portlet, and further comprising means for defining, in the functional interface  
3 specification associated with the new service, a public interface to the new service.

1 Claim 48 (currently amended): The system according to Claim 44, further comprising means for  
2 defining at least one of (1) a deployment interface to the new service and (2) a system interface to  
3 the new service, the deployment interface specified in the deployment interface specification  
4 associated with the new service or the system interface specified in a system interface  
5 specification associated with the new service, the system interface specification adapted for  
6 enabling programmatic management of the new service using the system interface.

1 Claim 49 (original): The system according to Claim 44, further comprising means for selecting  
2 one or more service providers to fulfill operations of the new service.

1 Claim 50 (currently amended): The system according to Claim 49, further comprising:  
2 means for determining a selected taxonomy wherein service providers may be located for  
3 binding to the new service;  
4 means for determining a particular network-accessible registry wherein services available

5 from [[the]] service providers ~~are~~ may be registered; and

6 means for programmatically scanning the particular registry to locate service providers  
7 having registered services in the selected taxonomy, wherein the registered services have the  
8 functional interface specification associated therewith, and wherein the functional interface  
9 specification indicates that at least one of the operations of the new service is available from the  
10 located service provider.

1 Claim 51 (original): The system according to Claim 49, further comprising means for defining a  
2 mapping between operations of the selected service providers and operations of the new service,  
3 wherein the mapping comprises at least one of (1) transformation logic, (2) stylesheet  
4 transformations, and (3) service-to-service transformations for particular services.

1 Claim 52 (currently amended): A computer program product for building distributed software  
2 services as aggregations of other services, the computer program product embodied on one or  
3 more computer-readable media and comprising:

4 computer-readable program code means for determining a taxonomy of interest for a new  
5 distributed software service that is to be accessible using a content aggregation framework;

6 computer-readable program code means for programmatically scanning a network-  
7 accessible registry to locate registered services having the taxonomy of interest;

8 ~~computer-readable program code means for determining if each located service has a~~  
9 ~~predetermined deployment interface; and~~

10 computer-readable program code means for providing each of the located services to a

11 service composition tool with which a user can select provided services to build new distributed  
12 services, if the located service has a deployment interface specification associated therewith and  
13 a functional interface specification associated therewith, the deployment interface specification  
14 adapted for representing the located service in the service composition tool and the functional  
15 interface specification adapted for enabling a proxying component to provide access to the  
16 located service from the content aggregation framework determining step has a positive result.

1 Claim 53 (currently amended): The computer program product according to Claim 52, further  
2 comprising:

3 computer-readable program code means for adding the predetermined deployment  
4 interface specification to the located service when the located service does not have the  
5 deployment interface specification; and  
6 computer-readable program code means for then providing the located service to the  
7 service composition tool computer-readable program code means for determining has a negative  
8 result.

1 Claim 54 (currently amended): The computer program product according to Claim 52, further  
2 comprising:

3 computer-readable program code means for determining if each located service has a  
4 predetermined system interface specification associated therewith, the system interface  
5 specification adapted for enabling programmatic management of for managing that located  
6 service; and

7           computer-readable program code means for adding the system interface specification to  
8           the located service when the computer-readable program code means for determining has a  
9           negative result.

1           Claim 55 (currently amended): The computer program product according to Claim 52, further  
2           comprising computer-readable program code means for building the new service, by the user,  
3           using selected ones of the provided services.

1           Claim 56 (currently amended): The computer program product according to Claim 55, further  
2           comprising computer-readable program code means for creating a directed graph representation  
3           of the new service, wherein nodes of the directed graph represent operations of the new service  
4           and edges of the directed graph represent transition conditions for transitioning between the  
5           operations of the new service, and wherein data mapping operations are associated with selected  
6           ones of the edges.

1           Claim 57 (original): The computer program product according to Claim 56, further comprising  
2           computer-readable program code means for creating a markup language document representing  
3           the directed graph representation and registering the markup language document in a network-  
4           accessible registry.

1           Claim 58 (currently amended): The computer program product according to Claim 55, wherein  
2           the new service is modeled as a portlet, and further comprising computer-readable program code

means for defining, in the functional interface specification associated with the new service, a public interface to the new service.

Claim 59 (currently amended): The computer program product according to Claim 55, further comprising computer-readable program code means for defining at least one of (1) a deployment interface to the new service and (2) a system interface to the new service, the deployment interface specified in the deployment interface specification associated with the new service or the system interface specified in a system interface specification associated with the new service, the system interface specification adapted for enabling programmatic management of the new service using the system interface.

Claim 60 (original): The computer program product according to Claim 55, further comprising computer-readable program code means for selecting one or more service providers to fulfill operations of the new service.

Claim 61 (currently amended): The computer program product according to Claim 60, further comprising:

computer-readable program code means for determining a selected taxonomy wherein service providers may be located for binding to the new service;

computer-readable program code means for determining a particular network-accessible registry wherein services available from [[the]] service providers may be are registered; and

computer-readable program code means for programmatically scanning the particular

8 registry to locate service providers having registered services in the selected taxonomy, wherein  
9 the registered services have the functional interface specification associated therewith, and  
10 wherein the functional interface specification indicates that at least one of the operations of the  
11 new service is available from the located service provider.

1 Claim 62 (original): The computer program product according to Claim 60, further comprising  
2 computer-readable program code means for defining a mapping between operations of the  
3 selected service providers and operations of the new service, wherein the mapping comprises at  
4 least one of (1) transformation logic, (2) stylesheet transformations, and (3) service-to-service  
5 transformations for particular services.

1 Claim 63 (added): A method of building distributed software services as aggregations of other  
2 services, comprising steps of:

3 determining a taxonomy of interest for a new distributed software service;

4 programmatically scanning a network-accessible registry to locate registered services

5 having the taxonomy of interest;

6 determining if each located service has a predetermined deployment interface;

7 providing the located services to a service composition tool if the determining step has a  
8 positive result;

9 building the new service using selected ones of the provided services;

10 creating a directed graph representation of the new service;

11 creating a markup language document representing the directed graph representation; and

12           registering the markup language document in a network-accessible registry, such that the  
13   new service thereby becomes available for locating in subsequent iterations of the  
14   programmatically scanning step.

1   **Claim 64 (added):** The method according to Claim 63, wherein the markup language document  
2   is a Web Services Flow Language ("WSFL") document.